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# Structural and textural properties of pillared montmorillonite at intercalation of large Al- and Al/Ce-polyhydroxocomplexes

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## Abstract

© 2015, Pleiades Publishing, Ltd. The possibility of adjusting the separation of silicate layers in montmorillonite in a broad range of basal distances d001 (1.3–2.4 nm) at the intercalation of large (0.7–1.8 nm) polyhydroxocomplexes of aluminum ([Al13O4(OH)24(H2O)12]7+, [Al30O8(OH)56(H2O)24]18+) and aluminum/cerium synthesized through the combined hydrolysis of aluminum and cerium salts in a reactor under pressure is shown. The formation of polyhydroxocomplexes was controlled by the methods of 27Al NMR and photon correlation and fluorescent spectroscopy at different concentrations of Al3+ ions (2.5–5.1 M) in solution. Textural properties (specific surface area, total pore volume, and mesoporosity) and fractal dimensionality of the samples of intercalated montmorillonite obtained by annealing at 300°C have been determined using the method of low-temperature nitrogen adsorption–desorption.

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